

## ASSIGNMENT 2

Textbook Assignment: "Mark 7 Aircraft Recovery Equipment and Barricade Systems"; chapter 3, pages 3-1 through 3-68.

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| <p>2-1. The Mk 7 recovery equipment is divided into a total of how many major systems?</p> <ol style="list-style-type: none"><li>1. Five</li><li>2. Two</li><li>3. Three</li><li>4. Four</li></ol> <p>2-2. What is the purpose of the Mk 7 arresting engine constant runout control (CRO) valve?</p> <ol style="list-style-type: none"><li>1. To control fluid flow from the engine cylinder to the accumulator</li><li>2. To control the hydraulic pressure maintained in the accumulator</li><li>3. To reduce peak tension on the purchase cables during arrestment</li><li>4. To allow equal payout of both ends of the deck pendant</li></ol> <p>2-3. The aircraft weight selector is adjusted while the arresting engine is in the battery position. This adjustment causes a change in the position of what component of the CRO valve?</p> <ol style="list-style-type: none"><li>1. The cam</li><li>2. The plunger</li><li>3. The upper lever</li><li>4. The lower lever</li></ol> <p>2-4. Which of the following statements is correct concerning the valve sleeve and stem movement of the CRO valve?</p> <ol style="list-style-type: none"><li>1. At a 1:1 ratio, the sleeve and stem move 1/4 in.</li><li>2. At a 1:1 ratio, the sleeve and stem move 1/2 in.</li><li>3. At a 4:1 ratio, the sleeve and stem move 1/2 in.</li><li>4. At a 4:1 ratio, the sleeve and stem move 1/4 in.</li></ol> <p>2-5. What controls the variation in the size of the opening of the CRO valve?</p> <ol style="list-style-type: none"><li>1. The drive system</li><li>2. The aircraft weight selector setting</li><li>3. The cam rotation</li><li>4. The plunger movement</li></ol> | <p>2-6. What is the function of the CRO valve weight selector indicator circuit?</p> <ol style="list-style-type: none"><li>1. To enable the synchro system to give a remote indication of the aircraft weight setting</li><li>2. To energize the circuit enabling the PRI-FLY operator to make remote weight settings from his station in PRI-FLY</li><li>3. To energize the circuit enabling the arresting gear officer to give a "clear deck" signal in the landing area</li><li>4. To complete the circuit enabling the LSO talker to energize the Heads Up Display (HUD)</li></ol> <p>2-7. What is the purpose of the four vertical elongated holes machined into the retract valve seat?</p> <ol style="list-style-type: none"><li>1. To allow fluid to pass through the valve from the main engine cylinder</li><li>2. To allow fluid to pass through the valve from the accumulator</li><li>3. To allow fluid to pass through the valve from the anchor dampers</li><li>4. To minimize the weight of the valve</li></ol> <p>2-8. Which of the following statements best describes the action of the return spring of the retract valve retraction lever?</p> <ol style="list-style-type: none"><li>1. The spring pulls up on the retract lever, which in turn pulls down on the plunger and valve stem</li><li>2. The spring pulls up on the retract lever, which in turn pulls up on the plunger and valve stem</li><li>3. The spring pulls down on the retract lever, which in turn pulls down on the plunger and valve stem</li><li>4. The spring pulls down on the retract lever, which in turn pulls up on the plunger and valve stem</li></ol> |
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- 2-9. What device is installed on the retract valve operating lever to eliminate chatter?
1. A return spring and tie rod
  2. A plunger
  3. A shock absorber
  4. A 6-inch-square neoprene impact pad
- 2-10. The Mk 7 Mod 2 and the Mk 7 Mod 3 arresting engines have what is described as a recirculating type hydraulic system.
1. True
  2. False
- 2-11. What position must the arresting engine crosshead be in when you check the engine accumulator fluid level?
1. Drain
  2. Fill
  3. off
  4. Battery
- 2-12. The accumulator fluid indicator will indicate what reading, if any, if the piston striker rod is NOT in contact with the actuator rod?
1. Drain
  2. Fill
  3. Battery
  4. None; no reading will be indicated
- 2-13. What is the purpose of the fluid replenishment system?
1. To replace or remove small amounts of fluid in the hydraulic system
  2. To replace large amounts of fluid lost due to leakage
  3. To provide a means of hydraulically setting the CRO valve
  4. To allow adjustment of the battery position of the crosshead
- 2-14. Which of the following statements regarding the fluid stowage system is INCORRECT?
1. Each arresting engine has its own stowage tank
  2. The tank is common to all arresting engines
  3. The tank can stow all the fluid from one arresting engine
  4. The capacity of the tank varies depending on the engine modification
- 2-15. What devices prevent corrosion of the cooling tubes in the fluid cooler?
1. Copper baffles
  2. Replaceable anodes
  3. Replaceable cathodes
  4. Rust inhibitors
- 2-16. Which components make up the actual engine of the arresting gear?
1. The crosshead and ram assembly
  2. The CRO valve and drive system
  3. The CRO valve, cylinder, and fixed end
  4. The cylinder and ram assembly
- 2-17. The outer end of the ram is attached to the crosshead by what device(s)?
1. A snap ring
  2. A bearing sleeve and retainer
  3. A split flange
  4. Pressure clamps
- 2-18. Which of the following parts enable lubricant to be retained in the cage and roller bearing assemblies of the crosshead sheaves and the sheaves of the fixed sheave installation?
1. Leather spacers
  2. Phenolic spacers
  3. Steel spacers
  4. Inner steel disc spacers
- 2-19. What purpose do the crosshead mounted slippers serve during arresting engine operation?
1. They absorb shock
  2. They support the crosshead
  3. They guide the crosshead
  4. They act as a bearing surface
- 2-20. What is the operating pressure of the automatic lubrication system?
1. 70 to 80 psi
  2. 75 to 85 psi
  3. 60 to 70 psi
  4. 40 to 50 psi
- 2-21. What is the proper amount of spring tension to be maintained on the hose reel of the automatic lubrication system?
1. 20 lb  $\pm$  1/2 lb
  2. 14 lb  $\pm$  1 lb
  3. 9 lb  $\pm$  1/2 lb
  4. 5 lb  $\pm$  1 lb

- 2-22. What is the function of the cable anchor damper?
1. To reduce vibration in the cable system by eliminating cable slack between the crosshead and fixed sheave assembly during retraction
  2. To reduce vibration in the purchase cable system by eliminating cable slack between the crosshead and fixed sheave assembly during an arrestment
  3. To provide a means of anchoring the purchase cable in the engine room
  4. To indicate that the arresting engine has returned to the battery position after arrestment
- 2-23. What source provides the energy for the battery positioner to operate?
1. Hydraulics
  2. Electricity
  3. Pneumatics
  4. Electrohydraulics
- 2-24. Which of the following is NOT a part of the sheave damper assembly?
1. The anchor assembly
  2. The buffer assembly
  3. The charging panel
  4. The damper piston
- 2-25. What is the purpose of the sheave damper flow control valve?
1. To allow free flow of fluid from the damper cylinder to the damper accumulator and a restricted flow from the damper accumulator to the damper cylinder
  2. To allow restricted flow of fluid from the damper cylinder to the damper accumulator and free flow from the damper accumulator to the damper cylinder
  3. To allow free flow of fluid to and from the damper accumulator only
  4. To allow free flow of fluid from the damper cylinder to the accumulator only
- 2-26. What is the primary function of the purchase cables?
1. To transmit the landing aircraft's force to the arresting engine
  2. To tension the crossdeck pendant
  3. To drive the control systems of the arresting engine
  4. To retract the crossdeck pendant
- 2-27. If the purchase cable payout is 72 feet, the engine ram will travel a total of how many feet?
1. 5
  2. 2
  3. 3
  4. 4
- 2-28. What two methods can be used to operate the retractable deck sheaves?
1. Hydraulically and manually
  2. Pneumatically and manually
  3. Electrically and manually
  4. Hydraulically and pneumatically
- 2-29. The adjustable torque limit switch is actuated by which of the following components?
1. The worm
  2. The tripping plate washer
  3. The torque spring
  4. The wormshaft
- 2-30. What is the only function of the retractable deck sheave limit bevel gear?
1. To transmit the motor force to the wormshaft
  2. To engage the lugs of the clutch bevel gear
  3. To rotate the sleeve
  4. To turn the pinion of the geared limit switch
- 2-31. Who may make adjustments to the retractable deck sheave geared limit switch?
1. Anyone from E division
  2. The work-center supervisor only
  3. A qualified electrician only
  4. Anyone from the QA branch
- 2-32. The crossdeck pendant cable ends are equipped with what type of terminals?
1. Swaged
  2. Poured basket
  3. Fiege
  4. Clamp

- 2-33. Wire supports are designed to maintain a crossdeck pendant height of 2 inches minimum. The maximum height should be measured between what two points?
1. From the top of the pendant to the deck at the pendant's highest point
  2. From the top of the pendant to the deck at the pendant's lowest point
  3. From the bottom of the pendant to the deck at the pendant's highest point
  4. From the bottom of the pendant to the deck at the pendant's lowest point
- 2-34. Which of the following components is/are NOT found in a barricade arresting engine installation?
1. Crossdeck pendant
  2. Sheave dampers
  3. Retractable sheaves
  4. Fluid cooler
- 2-35. The polyurethane semicoated barricade webbing assembly consists of a total of how many separate webbing systems?
1. Five
  2. Six
  3. Three
  4. Four

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IN ANSWERING QUESTIONS 2-36 THROUGH 2-38, SELECT FROM COLUMN B THE BARRICADE EQUIPMENT THAT PERFORMS THE FUNCTION LISTED IN COLUMN A.

	<u>A. FUNCTIONS</u>	<u>B. EQUIPMENT</u>
2-36.	Cushions the stanchion's fall against the deck	1. Stanchion hydraulic cylinder
2-37.	Raises and lowers the barricade stanchions	2. Counter-balancing springs
2-38.	Secures stanchions in the DOWN position	3. Tensioning pendants 4. Stanchion
2-39.	What is the approximate fluid capacity of the barricade power package gravity tank?	
	1. 75 gal	
	2. 100 gal	
	3. 150 gal	
	4. 200 gal	

- 2-40. Which parts of the barricade power package hydraulic control system operate in conjunction to maintain accumulator pressure within specified limits?
1. Air charging valve and motor controller
  2. Motor controller and gauge valve
  3. Pressure sensing switch and motor controller
  4. Pressure sensing switch and air charging valve
- 2-41. At what approximate pressure will the safety head in the power package accumulator rupture?
1. 1,500 psi
  2. 1,600 psi
  3. 1,750 psi
  4. 2,000 psi
- 2-42. Of the two broad maintenance categories, corrective maintenance is preferred over preventive maintenance.
1. True
  2. False
- 2-43. Newly installed hydraulic seals should be pressure tested for at least how long before recovery operations are resumed?
1. 90 min
  2. 60 min
  3. 45 min
  4. 30 min
- 2-44. Why is the arresting gear maintenance log considered the most important record kept on the arresting gear equipment?
1. It contains recovery log information
  2. It contains the names of maintenance personnel
  3. It contains wire rope history report information
  4. It contains most of the information needed to complete other reports and records
- 2-45. When must newly installed purchase cables be detorqued?
1. Between the first 50 to 60 landings and every 200 thereafter
  2. After the first 60 landings and every 300 thereafter
  3. Before 50 landings are reached and every 150 thereafter
  4. At the discretion of the maintenance officer

- 2-46. What condition will result from the stretching of newly installed purchase cables?
1. It causes the crosshead to move away from the crosshead stop, increasing the fluid capacity of the hydraulic system
  2. It causes the crosshead to move away from the crosshead stop, decreasing the fluid capacity of the hydraulic system
  3. It causes the crosshead to move toward the crosshead stop, increasing the fluid capacity of the hydraulic system
  4. It causes the crosshead to move toward the crosshead stop, decreasing the fluid capacity of the hydraulic system
- 2-47. After the wire rope has been cut, what is the next step in preparing it for terminal pouring?
1. Clean the end with chlorinated decreasing solvents
  2. Straighten the strands
  3. Remove the seizing from the cut end
  4. Remove the appropriate amount of the hemp center
- 2-48. What solvent is used to degrease and clean the broomed out end of the wire rope?
1. GRISOLVE MT-N
  2. ZINC CHLORIDE
  3. TRICHLOROETHANE
  4. AMMONIUM CHLORIDE
- 2-49. The grit blast cabinet used for etching the wire rope cables and terminals should be filled with how much grit prior to use?
1. 100 lb maximum
  2. 100 to 200 lb
  3. 200 lb minimum
  4. 200 to 250 lb
- 2-50. In terminal pouring, when, if ever, must the solution in the ultrasonic degreaser and the rinsing solution be replaced?
1. Replace both solutions after 10 terminals have been degreased and rinsed
  2. Replace the solutions only when they become dirty
  3. Replace the decreasing solution after 10 terminals have been degreased; no limit on the rinse solution
  4. Never; strain both solutions through 100 micron screen after each use and they may be used indefinitely
- 2-51. The flux solution used in terminal pouring should be heated to what temperature range?
1. 550 to 600°F
  2. 460 to 510°F
  3. 250 to 280°F
  4. 160 to 210°F
- 2-52. To calibrate the portable pyrometer, the zinc freeze point must be within what temperature range?
1. 950 to 1000°F
  2. 500 to 550°F
  3. 550 to 600°F
  4. 778 to 798°F
- 2-53. Before the molten zinc is poured into a terminal, the terminal must be heated to what temperature range?
1. 500 to 550°F
  2. 550 to 600°F
  3. 778 to 798°F
  4. 950 to 1000°F
- 2-54. When repacking a component, how much clearance should be maintained to allow the packing freedom of movement?
1. 5/32 to 8/32 in.
  2. 3/32 to 5/32 in.
  3. 3/64 to 3/8 in.
  4. 1/64 to 3/64 in.
- 2-55. The proper procedure used to proofload a poured terminal is to gradually increase the test pressure to 200,000 pounds, hold the pressure for 2 minutes, and then gradually bleed down the pressure.
1. True
  2. False

2-56. What hazardous condition may be caused by entrapped air in the arresting engine cylinder?

1. Two-blocking
2. Fast cable retraction
3. Walkback
4. Short runout

2-57. Of the following conditions, which one is considered extremely critical?

1. One broken wire in a crossdeck pendant
2. Debris near a deck winch
3. Sheaves slipping on races
4. Terminals jamming sheaves

2-58. Improper CRO valve cam alignment will cause which of the following conditions?

1. The actual setting of the valve will be different from that indicated by the weight selector
2. Main engine cylinder pressure will increase above 650 psi during arrestment
3. An accumulator pressure will be lower than its initial charging pressure
4. The CRO valve will always fully close prior to the aircraft's desired full runout